

CLAIMS:

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent is:

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AI
- 1 1. A user context classifier for a customer self service system that performs resource search
2 and selection, said system including a context attribute database comprising types of user
3 contexts and one or more context attributes associated with each user context for processing
4 by said system, and context attribute function database comprising functions for computing
5 values for each context attribute, said classifier comprising a mechanism for receiving a user
6 query and a context vector comprising data associating an interaction state with said user and,
7 processing said query and context vector against data included in said context attribute
8 database and context attribute function database for predicting a particular user context,
9 wherein said classifier populates said user context vector with context parameters specifying a
10 user interaction state for use in a subsequent resource search.
 - 1 2. The user context classifier for a customer self service system as claimed in Claim 1,
2 wherein said processing mechanism includes mechanism for applying said functions to
3 context for specifying said user interaction state, said mechanism further annotating the
4 context vector with a set of context parameters for use in subsequent processing.
 - 1 3. The user context classifier for a customer self service system as claimed in Claim 1,
2 wherein said processing mechanism implements an inductive learning algorithm for
3 predicting said user contexts.
 - 1 4. The user context classifier for a customer self service system as claimed in Claim 1, further
2 including mechanism for updating the attribute value functions database with more enhanced
3 functions.

1 5. The user context classifier for a customer self service system as claimed in Claim 1,
2 wherein said system further includes a user interaction database comprising data relating to
3 past user queries entered into the system and associated user contexts for particular users, said
4 mechanism for updating the attribute value functions database comprising mechanism for
5 analyzing historical user interaction data from the user interaction database and learning how
6 context attribute values map to context attribute functions, wherein said data from the user
7 records database serves as a training set for continuous improvement of said functions in said
8 attribute function database.

1 6. The user context classifier for a customer self service system as claimed in Claim 5,
2 wherein said user interaction data includes data relating to previous system interactions, said
3 data including user validated contexts that were applicable during said prior system
4 interactions, and the users responses relating to those interactions.

1 7. The user context classifier for a customer self service system as claimed in Claim 6,
2 wherein said previous system interaction data further includes prior transactions of a current
3 user and prior transactions of other similar users, wherein common behaviors and acceptance
4 criteria are determined for said updating said functions.

1 8. The user context classifier for a customer self service system as claimed in Claim 7,
2 wherein similar users comprise those users with shared organization, community or
3 environmental characteristics.

1 9. The user context classifier for a customer self service system as claimed in Claim 5,
2 wherein said updating mechanism provides additions and modifications to a set of context
3 attribute functions resulting in increasing ability to predict derived contexts as functions of the
4 raw contexts.

1 10. A method for classifying user contexts for a customer self service system that performs
 2 resource search and selection, said method comprising the steps of:
 3
 4 a) receiving a user query and a context vector comprising data associating an interaction state
 5 with said user;
 6
 7 b) processing said query and context vector against data included in a context attribute
 8 database comprising types of user contexts and one or more context attributes associated with
 9 each user context for processing by said system; and
 10
 11 c) processing said query and context vector against data included in a context attribute
 12 function database comprising functions for computing values for each context attribute,
 13 wherein said processing steps b) and c) results in predicting a particular user context and
 14 populating said user context vector with context parameters specifying a user interaction state
 15 for use in a subsequent resource search.

1 11. The method as claimed in Claim 10, wherein said processing step c) further includes the
 2 step of applying said functions to context for specifying said user interaction state, said
 3 populating step including annotating the context vector with a set of context parameters for
 4 use in subsequent processing.

1 12. The method as claimed in Claim 10, wherein said processing step c) further includes the
 2 step of implementing an inductive learning algorithm for predicting said user contexts.

1 13. The method as claimed in Claim 10, further including the step of updating the attribute
 2 value functions database with more enhanced functions.

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1 14. The method as claimed in Claim 13, wherein said updating step includes the steps of:
2
3 analyzing historical user interaction data from a user interaction database comprising data
4 relating to past user queries entered into the system and associated user contexts for particular
5 users; and,
6
7 mapping context attribute values to context attribute functions, said data from said user
8 records database serving as a training set for continuous improvement of said functions in said
9 attribute function database.

1 15. The method as claimed in Claim 14, wherein said user interaction data further includes
2 data relating to previous system interactions, said data including user validated contexts that
3 were applicable during said prior system interactions, and the users responses relating to those
4 interactions.

1 16. The method as claimed in Claim 15, wherein said previous system interactions includes
2 prior transactions of a current user and prior transactions of other similar users, said functions
3 updating step including the step of determining common behaviors and acceptance criteria
4 from said previous system interactions.

1 17. The method as claimed in Claim 16, wherein said similar users comprise those users with
2 shared organization, community or environmental characteristics.

1 18. The method as claimed in Claim 16, wherein said updating step includes the steps of
2 providing additions and modifications to a set of context attribute functions resulting in
3 increasing ability to predict derived contexts as functions of raw contexts.

1 19. A program storage device readable by machine, tangibly embodying a program of
2 instructions executable by the machine to perform method steps for classifying user contexts

3 for a customer self service system that performs resource search and selection, said method
4 comprising the steps of:
5 a) receiving a user query and a context vector comprising data associating an interaction state
6 with said user;
7
8 b) processing said query and context vector against data included in a context attribute
9 database comprising types of user contexts and one or more context attributes associated with
10 each user context for processing by said system; and
11
12 c) processing said query and context vector against data included in a context attribute
13 function database comprising functions for computing values for each context attribute,
14 wherein said processing steps b) and c) results in predicting a particular user context and
15 populating said user context vector with context parameters specifying a user interaction state
16 for use in a subsequent resource search.

1 20. The program storage device readable by machine as claimed in Claim 19, wherein said
2 processing step c) further includes the step of applying said functions to context for specifying
3 said user interaction state, said populating step including annotating the context vector with a
4 set of context parameters for use in subsequent processing.

1 21. The program storage device readable by machine as claimed in Claim 19, wherein said
2 processing step c) further includes the step of implementing an inductive learning algorithm
3 for predicting said user contexts.

1 22. The program storage device readable by machine as claimed in Claim 19, further
2 including the step of updating the attribute value functions database with more enhanced
3 functions.

1 23. The program storage device readable by machine as claimed in Claim 22, wherein said
2 updating step includes the steps of:
3 analyzing historical user interaction data from a user interaction database comprising data
4 relating to past user queries entered into the system and associated user contexts for particular
5 users; and,
6
7 mapping context attribute values to context attribute functions, said data from said user
8 records database serving as a training set for continuous improvement of said functions in said
9 attribute function database.

1 24. The program storage device readable by machine as claimed in Claim 23, wherein said
2 user interaction data further includes data relating to previous system interactions, said data
3 including user validated contexts that were applicable during said prior system interactions,
4 and the users responses relating to those interactions.